



PATENT SPECIFICATION

DRAWINGS ATTACHED

934037

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COMPLETE SPECIFICATION

Improvements in or relating to Rear Viewing Devices for Vehicles

We, KEN STEPHENS ENTERPRISES LIMITED, a British Company, of Cheltenham Road East, Gloucester, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to rear viewing devices for road vehicles. The term "vehicle" as used herein is intended broadly to include articulated vehicles comprising a tractor and trailer, such as a tractor and caravan trailer.

The driver of a motor vehicle, when towing a vehicle such as a caravan or when carrying a load of considerable length and width, normally suffers from the disadvantage of being partially "blind" in the rearward direction, due to his rearward view being obstructed by the trailer or load throughout a considerable angle. This is a great disadvantage when either reversing or driving in dense traffic conditions with closely following vehicles.

The invention consists in a road vehicle having a rear viewing device comprising a closed circuit television system including a television camera mounted in a rearwardly facing direction on the vehicle, and a television viewing screen mounted in the drivers' compartment of the vehicle.

The viewing screen is preferably disposed in or behind an aperture in the dashboard or in a position at or near the top or bottom of the windscreen of the motor vehicle.

Where the viewing screen is located in a towing vehicle and the camera in a trailer hitched thereto the closed circuit television system preferably includes plug-and-socket connections to enable the cable connection to be readily made and broken when the trailer is coupled to and uncoupled from the towing vehicle.

When used with a trailer or trailer caravan the camera may be positioned within the latter and arranged to view through a rear window of the trailer or trailer caravan.

A light filter may be provided in association with the camera lens and the effectiveness of the light filter may be arranged to be differentially variable for different portions of the view and preferably controllable by the driver of the motor vehicle.

A preferred embodiment of the invention as applied to a motor towing vehicle and trailer will now be described, by way of example, with reference to the accompanying diagrammatic drawings in which:—

Figure 1 is a side elevation, partly in section, of an articulated towing vehicle and trailer embodying the invention,

Figure 2 is a block schematic diagram of the optical and electrical components,

Figure 3 is a front elevation of a television receiver and control unit constituting part of the said electrical components, and

Figures 4 and 5 are plan views of vehicles embodying the invention, in different traffic situations.

Referring to Figure 1, a trailer 1 is coupled to a towing vehicle 2 articulated at 3. A television camera assembly consisting of a viewing lens 4, light filter 5, a television camera 6 and pre-set control and amplifier unit 7 is mounted at the rear of and arranged so as to view through a window in the trailer 1. The camera assembly forms part of a closed circuit television system comprising a television screen 8, control unit 9, time base unit 10, power supply 11 and connecting cable 12, the latter having a plug and socket connector 13 at the front end of the trailer 1. The television receiver or viewing screen 8 and control unit 9 are located in the dashboard of the towing vehicle 2.

Figure 2 shows the connections between components 4 to 11 schematically, conductors 14 to 17 constituting the cores of cable 12 and providing respectively for the transmission of the video signal, filter control and focus, line and frame time base signals and power supplies.

Figure 3 shows the television screen 8 and the control unit 9, the latter comprising an on-off switch 18, a brilliance control knob 19 and co-axial focus and filter adjusting knobs 20 and 21. The filter 5, adjustable by means of the knob 21, consists of a mask movable transversely to the lens 4 and having portions of varying opacity or colour absorption, whereby, for example, by vertically downward movement of the mask the image of the skyline may be darkened whilst that of the roadway is left relatively clear, and vice versa.

In Figure 4 a motor vehicle 2 towing a trailer 1 carrying a wide load is shown about to be overtaken by a vehicle 22. The trailer 1 and towing vehicle 2 are equipped respectively with a television camera and receiver. The angle A represents the arc of vision by means of a camera mounted centrally at the rear of the trailer 1, as compared with the arc of vision B available to the driver from his rear viewing mirror, and shows that the vehicle 22 would not be seen through the rear viewing mirror until it was alongside the trailer 1, whereas its presence could be indicated to the driver of vehicle 2 by means of apparatus according to the invention.

Figure 5 shows an articulated towing vehicle 2 towing a trailer 1 round a sharp bend; again the trailer 1 and towing vehicle 2 are equipped respectively with a television camera and receiver and the camera is mounted centrally at the rear of the trailer 1. As in Figure 4, the arc of vision by means of the camera as indicated by A can be seen to be very much better than that available from the rear viewing

mirror as indicated by B and a vehicle behind the vehicle 2 would be indicated to the driver of the latter long before he could see it through his rear viewing mirror.

WHAT WE CLAIM IS:—

1. A road vehicle having a rear viewing device comprising a closed circuit television system including a television camera mounted in a rearwardly facing direction on the vehicle, and a television viewing screen mounted in the driver's compartment of the vehicle.

2. A road vehicle as claimed in claim 1, in which the vehicle is articulated and includes tractor and trailer portions, and in which the camera is positioned on the trailer.

3. A vehicle as claimed in claim 1 or claim 2, in which the viewing screen is disposed in or behind an aperture in the driver's dashboard.

4. A vehicle as claimed in claim 1, or claim 2, in which the viewing screen is disposed in a position at or near the top or bottom of the driver's windscreen.

5. A vehicle as claimed in any of the preceding claims, in which a light filter is provided in association with the camera lens.

6. A vehicle as claimed in claim 5, in which the effectiveness of the light filter is differentially variable for different portions of the view.

7. A vehicle as claimed in claim 5 or claim 6, in which the effectiveness of the light filter is variable by the driver.

8. A road vehicle substantially as herein described with reference to Figures 1, 2 and 3, or to Figure 4 or Figure 5 of the accompanying drawings.

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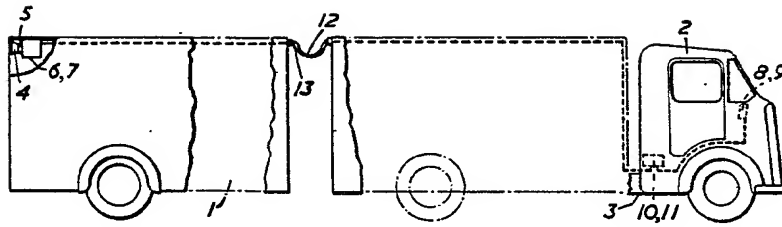


FIG. 1.

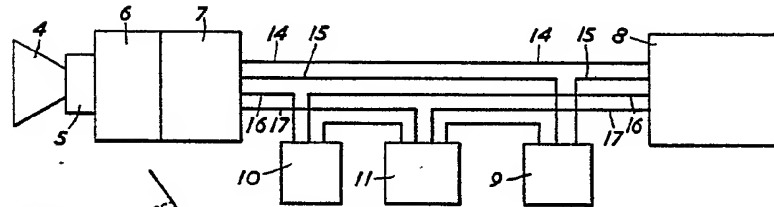


FIG. 2.

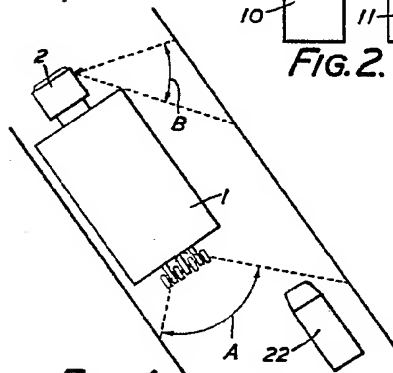


FIG. 4.

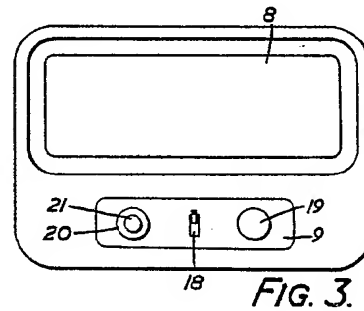


FIG. 3.

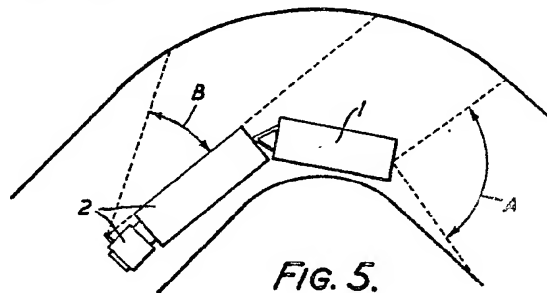


FIG. 5.